AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): An object-oriented virtual machine interface for a reconfigurable wireless network communication apparatus;

said reconfigurable wireless network communication apparatus comprising a plurality of kernels, wherein each kernel is designed to perform a specific processing function; and

said object-oriented virtual machine interface comprising a plurality of software objects including a first subset of said software objects, each software object in said first subset of said software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said first subset of said software objects results in a change in said kernel associated with said software object.

Claim 2 (Original): The object-oriented virtual machine interface of claim 1 wherein said plurality of software objects includes a second subset of said software objects, each software object in said second subset of said software objects having at least one adjustable attribute.

Claim 3 (Previously Presented): The object-oriented virtual machine interface of claim 2 wherein said at least one adjustable attribute is a static or dynamic attribute.

Claim 4 (Original): The object-oriented virtual machine interface of claim 1 wherein a kernel in said plurality of kernels is configurable in accordance with a communication protocol.

Claim 5 (Original): The object-oriented virtual machine interface of claim 4 wherein said selected communication protocol is a CDMA (code division multiple access) protocol.

Claim 6 (Original): The object-oriented virtual machine interface of claim 4 wherein said communication protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB-WCDMA.

Claim 7 (Original): The object-oriented virtual machine interface of claim 4 wherein said selected communication protocol is a time division multiple access (TDMA) protocol.

Claim 8 (Original): The object-oriented virtual machine interface of claim 7 wherein said communication protocol is IS-136 TDMA.

Claim 9 (Original): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is a searcher object, a code generation unit object or a finger object.

Claim 10 (Original): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is a matched filter object or a combiner object.

Claim 11 (Original): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is an uplink object or a downlink object.

Claim 12 (Currently Amended): ~~The~~ An object-oriented virtual machine interface for a reconfigurable wireless network communication apparatus;

said reconfigurable wireless network communication apparatus comprising a plurality of kernels;

said object-oriented virtual machine interface comprising a plurality of software objects including a first subset of said software objects, each software object in said first subset of said software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said first subset of said software objects results in a change in said kernel associated with said software object;~~of claim 1,~~

said plurality of software objects comprising a searcher object, a code generation unit object, a finger object, a matched filter object, a combiner object, an uplink object and a downlink object; and

said plurality of kernels comprising a searcher kernel, a code generation unit kernel, a finger kernel, a matched filter kernel, a combiner kernel, an uplink kernel and a downlink kernel; wherein:

said searcher object is associated with said searcher kernel;

said code generation unit object is associated with said code generation unit kernel;

said finger object is associated with said finger kernel;

said matched filter object is associated with said matched filter kernel; said combiner object is associated with said combiner kernel;

said uplink object is associated with said uplink kernel; and

said downlink object is associated with said downlink kernel.

Claim 13 (Currently Amended): An object-oriented reconfigurable system comprising an object-oriented virtual machine interface, a virtual machine and a reconfigurable apparatus,

said reconfigurable apparatus coupled to said virtual machine and comprising a plurality of kernels, wherein each kernel is designed to perform a specific processing function; and

said object-oriented virtual machine interface coupled to said virtual machine and comprising a plurality of software objects including a first subset of said software objects, each software object in said first subset of said software objects associated with a different kernel in said plurality of kernels such that a change to a software object in said first subset of said software objects results in a change in said kernel associated with said software object.

Claim 14 (Original): The object-oriented reconfigurable system of claim 13 wherein said plurality of software objects includes a second subset of said software objects, each software object in said second subset of said software objects having at least one adjustable attribute.

Claim 15 (Original): The object-oriented reconfigurable system of claim 14 wherein said at least one adjustable attribute is a static or dynamic attribute.

Claim 16 (Original): The object-oriented reconfigurable system of claim 13 further comprising:

an application program interface comprising a plurality of software routines, each software routine in said plurality of software routines representing a different communication protocol,

wherein said plurality of software routines comprise software calls to said plurality of software objects; and

an application program comprising software calls to said plurality of software routines.

Claim 17 (Original): The object-oriented reconfigurable system of claim 16 further comprising:

a compiler within said virtual machine to translate said application program into machine-readable instructions executable on said object-oriented reconfigurable system.

Claim 18 (Original): The object-oriented reconfigurable system of claim 17 further comprising:

a resource allocator within said object-oriented reconfigurable system, said resource allocator configured to receive said machine-readable instructions and issue a signal to configure a kernel in said plurality of kernels.

Claim 19 (Original): The object-oriented reconfigurable system of claim 13 further comprising:

an application program for utilizing said plurality of software objects.

Claim 20 (Original): The object-oriented reconfigurable system of claim 19 further comprising:

a compiler within said virtual machine to translate said application program into machine-readable instructions executable on said object-oriented reconfigurable system.

Claim 21 (Original): The object-oriented reconfigurable system of claim 20 further comprising:

a resource allocator configured to receive said machine-readable instructions, and issue a command signal to control a kernel in said plurality of kernels.

Claim 22 (Previously Presented): The object-oriented reconfigurable system of claim 13 wherein a software object in said plurality of software objects is a searcher object, a code generation unit object, a finger object, an uplink object or a downlink object.

Claim 23 (Currently Amended): ~~The~~ An object-oriented reconfigurable system comprising an object-oriented virtual machine interface, a virtual machine and a reconfigurable apparatus,

said reconfigurable apparatus coupled to said virtual machine and comprising a plurality of kernels;

said object-oriented virtual machine interface coupled to said virtual machine and comprising a plurality of software objects including a first subset of said software objects, each software object in said first subset of said software objects associated with a different kernel in said plurality of kernels such that a change to a software object in said first subset of said software objects results in a change in said kernel associated with said software object;~~of claim 13,~~

said plurality of software objects in said first subset of said software objects comprising a searcher object, a code generation unit object, a finger object, a matched filter object, a combiner object, an uplink object and a downlink object; and

said plurality of kernels comprising a searcher kernel, a code generation unit kernel, a finger kernel, a matched filter kernel, a combiner kernel, an uplink kernel and a downlink kernel; wherein:

said searcher object is associated with said searcher kernel;

said code generation unit object is associated with said code generation unit kernel;

said finger object is associated with said finger kernel;

said matched filter object is associated with said matched filter kernel;

said combiner object is associated with said combiner kernel;

said uplink object is associated with said uplink kernel; and

and said downlink object is associated with said downlink kernel.

Claim 24 (Currently Amended): ~~The~~ An object-oriented reconfigurable system comprising an object-oriented virtual machine interface, a virtual machine and a reconfigurable apparatus,

said reconfigurable apparatus coupled to said virtual machine and comprising a plurality of kernels; and

said object-oriented virtual machine interface coupled to said virtual machine and comprising a plurality of software objects including a first subset of said software objects, each software object in said first subset of said software objects associated with a different kernel in said plurality of kernels such that a change to a software object in said first subset of said software objects results in a change in said kernel associated with said software object, ~~of claim 13~~

wherein said plurality of kernels comprise a searcher kernel, a code generation unit kernel, a finger kernel, an uplink kernel and a downlink kernel.

Claim 25 (Original): The object-oriented reconfigurable system of claim 13 wherein a kernel in said plurality of kernels is configured to operate under a CDMA protocol.

Claim 26 (Original): The object-oriented reconfigurable system of claim 25 wherein said CDMA protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA.

Claim 27 (Original): The object-oriented reconfigurable system of claim 13 wherein a kernel in said plurality of kernels is configured to operate under a TDMA protocol.

Claim 28 (Original): The object-oriented reconfigurable system of claim 27 wherein said TDMA protocol is IS-136 TDMA.

Claim 29 (Currently Amended): A method of communication using an object oriented virtual machine interface and a reconfigurable multi-protocol communication apparatus, said reconfigurable multi-protocol communication apparatus including a plurality of kernels and an interconnect structure for interconnecting said plurality of kernels, said method comprising:

creating a plurality of software objects, each software object in said plurality of software objects corresponding to a different kernel in said plurality of kernels, wherein each kernel is designed to perform a specific processing function;

assigning an attribute value to a software object in said plurality of software objects in accordance with a communication protocol; and

configuring the kernel associated with said software object in accordance with said attribute value.

Claim 30 (Original): The method of claim 29 wherein at least two software objects in said plurality of software objects have a hierarchical relationship.

Claim 31 (Original): The method of claim 29 further comprising developing an application program that includes software calls to said plurality of software objects.

Claim 32 (Original): The method of claim 31 further comprising developing a software virtual machine to process said application program.

Claim 33 (Original): The method of claim 32 further comprising translating said application program into a program executable on said software virtual machine.

Claim 34 (Original): The method of claim 33 further comprising issuing, from said software virtual machine, an instruction for controlling a kernel in said plurality of kernels.

Claim 35 (Original) The method of claim 29 further comprising:

forming an application program interface comprising a plurality of software routines, said plurality of software routines representing a plurality of communication protocols, wherein said plurality of software routines comprise software calls to said plurality of software objects.

Claim 36 (Original): The method of claim 29 further comprising developing an application program comprising software calls to said plurality of software routines.

Claim 37 (Currently Amended): A computer program product for a reconfigurable object-oriented apparatus comprising a plurality of kernels and an interconnect structure for interconnecting said plurality of kernels, the computer program product comprising a computer readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

instructions for instantiating a plurality of software objects, each software object in said plurality of software objects corresponding to a different kernel in said plurality of kernels such that a change to said software object results in a change in a state of said corresponding different kernel, wherein each kernel is designed to perform a specific processing function;

instructions for assigning an attribute value to a first software object in said plurality of objects according to a communication protocol; and

issuing machine-readable instructions to configure the kernel associated with said first software object in accordance with said attribute value.

Claim 38 (Original): The computer program product of claim 37, wherein the computer program mechanism further comprising instructions for:

instantiating a plurality of software routines from an application program interface, said plurality of software routines representing a plurality of standards, wherein said plurality of software routines comprise software calls to said plurality of software objects.

Claim 39 (Original): The computer program product of claim 37 wherein said plurality of software objects comprise:

a searcher object;

a code generation unit object;

a finger object;

an uplink object; and

a downlink object.

Claim 40 (Currently Amended): ~~The~~ A computer program product for a reconfigurable object-oriented apparatus comprising a plurality of kernels and an interconnect structure for interconnecting said plurality of kernels, the computer program product comprising a computer readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

instructions for instantiating a plurality of software objects, each software object in said plurality of software objects corresponding to a different kernel in said plurality of kernels such that a change to said software object results in a change in a state of said corresponding different kernel;

instructions for assigning an attribute value to a first software object in said plurality of objects according to a communication protocol; and

issuing machine-readable instructions to configure the kernel associated with said first software object in accordance with said attribute value, ~~of claim 39~~

wherein said plurality of software objects comprise a searcher object, a code generation unit object, a finger object, an uplink object, and a downlink object, and

wherein said plurality of kernels comprise a searcher kernel, a code generation unit kernel, a finger kernel, an uplink kernel and a downlink kernel respectively corresponding to said searcher

object, said code generation unit object, said finger object, said uplink object and said downlink object, respectively.

Claim 41 (Original): A computer program product of claim 39 wherein said communication protocol is CDMA.

Claim 42 (Withdrawn): An apparatus to facilitate wireless communication, comprising a hardware reconfigurable and software programmable processor responsive to a predetermined virtual machine interface.

Claim 43 (Currently Amended): A method for reconfiguring a wireless network communication apparatus having a plurality of kernels, the method comprising the steps of:

parsing an application program that designates a communication protocol;

producing machine readable data capable of reconfiguring said reconfigurable wireless network communication apparatus in accordance with said communication protocol; and

providing an object-oriented virtual machine interface having a plurality of software objects, each software object in said plurality of software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said plurality of software objects results in a change in said kernel associated with said software object,

<u>wherein each kernel is designed to perform a specific processing function, and</u>

wherein said machine readable data includes a first software object selected from said plurality of software objects.

Claim 44 (Canceled)

Claim 45 (Previously Presented): The method of claim 43 wherein said first software object is a function or procedure.

Claim 46 (Currently Ameneded): A computer program product for use in conjunction with a reconfigurable wireless network communication apparatus having a plurality of kernels, the computer program product comprising a computer readable storage medium and a computer program mechanism embedded therein, the computer program mechanism comprising:

a program module for reconfiguring said reconfigurable wireless network communication apparatus comprising:

instructions for parsing an application program that designates a communication protocol; and

instructions for producing machine readable data capable of reconfiguring said reconfigurable network communication apparatus in accordance with said communication protocol;

the computer program product further comprising an object-oriented virtual machine module comprising a plurality of software objects, each software object in said plurality of software objects associated with a different kernel in said plurality of kernels so that a change to a software object in said plurality of software objects results in a change in said kernel associated with said software object,

wherein each kernel is designed to perform a specific processing function, and

wherein said machine readable data include a first software object selected from said plurality of software objects.

Claim 47 (canceled)

Claim 48 (Previously Presented): The computer program product of claim 46 wherein said first software object is a function or procedure.

Claim 49 (Previously Presented): The method of claim 29 wherein a software object in said plurality of software objects is associated with at least two kernels in said plurality of kernels.

Claim 50 (Previously Presented): The method of claim 29 wherein at least two kernels in said plurality of kernels are associated with the same software object in said plurality of software objects.

Claim 51 (Original): The object-oriented reconfigurable system of claim 13 wherein a software object in said plurality of software objects is associated with at least two kernels in said plurality of kernels.

Claim 52 (Previously Presented): The object-oriented reconfigurable system of claim 13 wherein at least two kernels in said plurality of kernels are associated with the same software object in said plurality of software objects.

Claim 53 (Previously Presented): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is a searcher object or a finger object.

Claim 54 (Previously Presented): The object-oriented virtual machine interface of claim 1 wherein a software object in said plurality of software objects is a matched filter object.

Claim 55 (Previously Presented): The object-oriented reconfigurable system of claim 13 wherein a software object in said plurality of software objects is a searcher object, a finger object, an uplink object or a downlink object.

Claim 56 (New): The object-oriented virtual machine interface of claim 1, wherein the kernels may be configured for different parameters dynamically.

Claim 57 (New): The object-oriented reconfigurable system of claim 13, wherein the kernels may be configured for different parameters dynamically.

Claim 58 (New): The method of claim 29, wherein the kernels may be configured for different parameters dynamically.

Claim 59 (New): The computer program product of claim 37, wherein the kernels may be configured for different parameters dynamically.

Claim 60: (New): The method of claim 43, wherein the kernels may be configured for different parameters dynamically.

Claim 61 (New): The computer program product of claim 46, wherein the kernels may be configured for different parameters dynamically.

Claim 62 (New): The object-oriented virtual machine interface of claim 1, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 63 (New): The object-oriented reconfigurable system of claim 13, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 64 (New): The method of claim 29, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 65 (New): The computer program product of claim 37, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 66: (New): The method of claim 43, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 67 (New): The computer program product of claim 46, wherein the software objects may be updated according to the states of their associated kernels dynamically.

Claim 68 (New): The object-oriented virtual machine interface of claim 1, wherein a change in a kernel of said plurality of kernels results in a change in the software object associated with that kernel.

Claim 69 (New): The object-oriented reconfigurable system of claim 13, wherein a change in a kernel of said plurality of kernels results in a change in the software object associated with that kernel.

Claim 70 (New): The method of claim 29, further comprising the step of updating an attribute value of a software object in said plurality of software objects in accordance with a change in a state of the kernel associated with that software object.

Claim 71 (New): The computer program product of claim 37, further comprising:

instructions for updating an attribute value of a software object of said plurality of software objects in accordance with a change in a state of the kernel associated with that software object; and

instructions for updating a software object of said plurality of software objects in accordance with a change in the state of the kernel associated with that software object.

Claim 72: (New): The method of claim 43, further comprising the step of, in response to a change in a kernel of said plurality of kernels, changing the software object associated with that kernel.

Claim 73 (New): The computer program product of claim 46, further comprising instructions for, in response to a change in a kernel of said plurality of kernels, changing the software object associated with that kernel.